445386

352454

United States Department of Agriculture

Forest Service Uinta NF

RECEIVED
APR 10 1991
UTAH DEPT. OF HEALTH
BUREAU OF ENVIRONMENTAL
RESPONSE AND REMEDIATION

Reply to: 2840 Reclamation

Date: MAY 15 1989

Subject: Abandoned Mine Reclamation

To: District Ranger, D-2

In the Spring of 1988, $28,000 of Clean Water Act funding was allocated to the Uinta National Forest for determination and identification of pollution problems at the Pacific, Bingelli, Red Ledges, Lost Josephine, and Harker mines. It was quickly determined that neither the Bingelli nor the Lost Josephine mines were abandoned mine sites, and neither had any drainage coming from their adits.

The Bingelli site has been declared a void claim by the BLM, and any needed reclamation of disturbed areas is likely the responsibilility of the former claimant.

The Lost Josephine mine was reactivated in 1986, and a plan of operations for exploration was approved by the District Ranger. Any needed reclamation will be the responsibility of the operator under the direction of the Forest Service. The Red Ledges Mine has some water seeping from its adits, but this water infiltrates back into the ground soon after its appearance. It is not considered to be a pollution problem.

Both the Harker and Pacific mines were in need of further evaluation. In addition, several other mining sites including the Miller Hill, Mary Ellen Gulch, Bog Mine, and the North Oakbrush Mines were considered to need similar evaluations. Each of the latter were included on the Federal Facility Compliance Program project proposal listing. It was therefore decided to complete evaluations on all the above sites during the upcoming field season. It was further determined that all of the needed sampling and other work could probably be completed with the funding available.

A purchase order for personal services to complete a preliminary assessment of water quality problems at these sites was negotiated with Dr. LaVere Merritt, an Environmental Engineer, Professor at the BYU, and a recognized expert in the field of water quality. I visited each site with Dr. Merritt during May and took selected water samples. Following this, Dr. Merritt prepared a report titled, "Preliminary Survey of Water Quality in Mine Drainage in Sheeprock Mountains and North Fork of the American Fork River," a copy of which is enclosed.

Based on the preliminary sampling, Dr. Merritt recommended no additional sampling and no treatment at the Harker and North Oakbrush mine sites in the Sheeprock Mountains. Though some polluted water comes from some of the mine adits located on private lands, it is well diluted by the time the flows reach streams on National Forest System Lands.

At the Miller Hill mine, drain tunnel water was of very high quality, and no further sampling was recommended. The mine tailings at this site encroach on the North Fork American Fork stream, and protection of the mine tailings via

some method of stream bank stabilization and revegetation of the tailings piles would be desirable. Both are located on patented mining land.

Our visit to the Bog Mine revealed no effluent flowing from the mine tunnel. There are, however, some raw tailings which exist on National Forest System Lands, the access road to the mine has been washed out, and stream bank erosion is occurring in the vicinity of the old stream crossing. A lower adit about 1/4 mile downstream was contributing obviously polluted effluent into the creek a short distance away. The effluent proved to be acid with a pH of less than 4.5. It was recommended that additional samples be taken at this site. Both the mine and receiving waters are on National Forest System Lands. The lower adit may in reality be the source which was intended for inclusion in the inventory. We have referred to it as the "Lower Bog Mine".

Additional samples were taken at this adit and at sites both above and below on July 20 and September 21. Macroinvertebrates were also sampled on these days by Dr. Fred Mangum. While negatively influenced during July, the water quality of the North Fork of American Fork did not exceed State standards for any measured parameters. In September, however, the State standards for both cadmium and zinc for cold water aquatic wildlife were exceeded immediately downstream from the mine drainage. Macroinvertebrates were also seriously affected during the latter period.

Two adits were sampled on a preliminary basis at the Pacific mine area. Neither source showed acid problem. The NW adit showed some indication of lead contamination but followup sampling during July indicated it probably is not a problem. There was some indication at this adit that mining activity is being reinitiated as an old dwelling near the site was being renovated.

At the main Pacific adit preliminary sampling results indicated that effluent levels for cadmium, copper, and zinc all exceeded the State standard. As this flow proceeded through the tailings, it became increasing more polluted until the effluent also violated State standard for lead and silver at the point where it drained into the North Fork American Fork River. It was raining and snowing at the time we visited the Pacific Mine site, and surface runoff was occurring from the tailings areas. A sample of the effluent entering the stream showed all of the previously-listed parameters exceeded, State standards and were greatly amplified over the values found in the mine adit effluents. In addition this runoff water also included excessive levels of mercury.

Water quality on the main stream about 1 mile downstream from the Pacific Mine area was quite good, although levels of lead and zinc remained elevated.

Dr. Merritt recommended continued sampling in the Pacific Mine area. Followup samples taken in July and September showed continued excessive elevated levels of cadmium, lead, and zinc entering the main stream from the mine effluent. Water quality downstream from the mine was generally adequate (within standards) but exhibited elevated levels of zinc.

All concerned observers involved thus far at the Pacific Mine agree that the effluent from the main adit should be routed to the creek without crossing through the tailings area and that the tailings piles should be stabilized and revegetated. Control of ORV use on this site will be necessary before stabilization can be achieved. The adit and upper portion of the tailings are located on patented mining claims, while the lower portion of the tailings and a part of the receiving stream are on National Forest System land. Macroinvertebrate sampling results are in line with the above findings and show adverse, though not serious degradation of the main stream immediately

below the Pacific Mine. Sedimentation and zinc pollution appear to cause the most serious impacts.

Preliminary sampling results in the Mary Ellen Gulch mining area showed that effluent from the Mary Ellen (Yankee) Mine portal contained excessive levels of cadmium, copper, and zinc which impacted the stream for at least a 1/4 mile downstream from where the effluent entered Mary Ellen Creek. Elevated levels of arsenic were also found in the adit waters. This flow also runs through mine tailings before entering the main stream. In the process, lead and copper l ls are decreased. The effluent was only ng was recommended by Dr. Merritt.

Followup re intensive than was the prelimin ove the expected source of any mine pol elow the tailings areas, and at the mout

July and ters above the main mining activity the results of the preliminary sampling chief offending parameter. Although ds in the main stream, it appeared in much e Mary Ellen stream system and is apparent d levels on the North Fork of American h Mary Ellen Gulch. The macroinv ve results. Piping of the water from the utary stream through the tailings nnel appear desirable, in addition to stabi scattered throughout this drainage

In summa tes that localized stream pollutio h Fork of the American Fork River below th e and on Mary Ellen Gulch below the mini of that drainage.

Addition y whatever position we take to address -ground meeting in May to review this sit se of action.

I sugges… … State Bureau of Water Pollution Control, and Regional Office Mining Reclamation and Watershed Management personnel as part of this effort. If you wish, I will make the contacts concerning this meeting.

If you have questions concerning this information, please contact me.

Sincerely,

Paul H. Skabelund

PAUL H. SKABELUND
Forester

88 West 100 North
Provo, UT
84601

Skabelund
PAUL SCABLUND
U.S. FOREST SERV.
PLEASANT GROVE
801-377-5780
FTS 329-2226
CLARK FORK
MINES
REGIONAL OFFICE
IN OGDEN

below the Pacific Mine. Sedimentation and zinc pollution appear to cause the most serious impacts.

Preliminary sampling results in the Mary Ellen Gulch mining area showed that effluent from the Mary Ellen (Yankee) Mine portal contained excessive levels of cadmium, copper, and zinc which impacted the stream for at least a 1/4 mile downstream from where the effluent entered Mary Ellen Creek. Elevated levels of arsenic were also found in the adit waters. This flow also runs through mine tailings before entering the main stream. In the process, lead and copper levels are increased and arsenic levels are decreased. The effluent was only slightly acidic. Additional sampling was recommended by Dr. Merritt.

Followup sampling in Mary Ellen Creek was more intensive than was the preliminary sampling. Samples were taken above the expected source of any mine pollution on the contributing stream, below the tailings areas, and at the mouth of Mary Ellen Creek.

July and September sampling verified that waters above the main mining activity were of high quality and confirmed the results of the preliminary sampling program. Zinc was verified as the chief offending parameter. Although it did not exceed the State standards in the main stream, it appeared in much elevated levels throughout the entire Mary Ellen stream system and is apparently responsible for increased elevated levels on the North Fork of American Fork River below its confluence with Mary Ellen Gulch. The macroinvertebrate sampling supported the above results. Piping of the water from the main adit and of the receiving tributary stream through the tailings-strewn area along the West Fork channel appear desirable, in addition to stabilization of numerous tailings spoils scattered throughout this drainage.

In summary, our 1988 sampling program indicates that localized stream pollution problems are resulting on the North Fork of the American Fork River below the Lower Bog Mine and the Pacific Mine and on Mary Ellen Gulch below the mining disturbed areas on the west side of that drainage.

Additional sampling may be needed to solidify whatever position we take to address these problems. I suggest an on-the-ground meeting in May to review this situation and determine our future course of action.

I suggest that we involve personnel from the State Bureau of Water Pollution Control, and Regional Office Mining Reclamation and Watershed Management personnel as part of this effort. If you wish, I will make the contacts concerning this meeting.

If you have questions concerning this information, please contact me.

Sincerely,

Paul H. Skabelund

PAUL H. SKABELUND
Forester

88 West 100 North
Provo, UT
84601